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Effectiveness of Satellite Programs for Technical Updating of Vocational Education Teachers

Larry Hudson
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Abstract: This article describes the planning, implementation, development and evaluation of a funded project that used distance education technologies for technical updating of vocational education teachers in Florida. The project was completed during the summer of 1992. Eight of nine public universities in Florida worked in collaboration on the project. Delivery of 12, two-hour live satellite programs was completed within a four-week period with participation of teachers from throughout Florida. Analysis of responses from participants in the workshops depicts acceptance of the use of distance education technologies for technical updating.

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This project, funded with 1991-92 Carl D. Perkins federal support, had three goals:

1. To use a variety of distance learning technologies that provide teachers with technical skills for updating specified vocational program areas.

2. To study the effectiveness and efficiency of interactive versus non-interactive formats for delivering distance learning.

3. To promote cooperation and teaming among academic and vocational teacher educators in Florida’s state universities.

The above list was the priority order as stated in the grant; however, for this article, the goals will be discussed in a different order.

Goal 3: Promotion of Teaming

From the perspective of promoting cooperation and teaming among university teacher educators, the project was a definite success. Within a short amount of time (six weeks from funding to completion), the vocational teacher educators developed and delivered 12, two-hour interactive satellite programs for Florida’s vocational education teachers. Eight of the nine public universities in the state participated in the project, with seven presenting programs and one providing outside evaluation.

This cooperation was not instantaneous. During the March 1992 meeting of the Florida Association of Vocational Teacher Educators (FAVTE), the project was initially discussed. A team approach was proposed with the suggestion that participating universities develop programs based upon results of a needs assessment conducted in 1991 in consultation with personnel from the Division of Vocational, Adult and Community Education (DVACE). The DVACE representative requested that faculty at all nine public universities in Florida be involved as either program developers or as outside third party evaluators. During that same
time, a follow-up discussion about the proposed project was held with the State Director for
the Division of Vocational, Adult and Community Education (DVACE). Ultimately, a six-
page pre-proposal was delivered for consideration.

Between March and April, further discussions occurred between the coordinating
university contact and a representative of the DVACE, with a request for proposal sent out in
late April. The project was formally awarded at the end of April. Acceptance by eight of
the nine universities was achieved, with one declining. Sub-contracts were developed within
two days for the participants, sent out on a Friday, returned by the following Monday and
delivered overnight to the DVACE by Tuesday. The time constraints were enormous.

By mid-May, the final project was funded. Payment for sub-contracts among the
Sponsored Research Divisions was achieved by the end of the grant period, but not without
some challenges. These were primarily due to time constraints, policies for expenditures and
preferred contract language. A high level of trust had to exist for these universities to
initiate the project with an intent to pay transfer monies as soon as possible, but nearer to
June 30, the end of the fiscal year.

To prepare the university teacher educators for teaching via satellite, a special workshop
based on Teaching Through Interactive Television: A Practical Introduction to Business
Television and Distance Education (Ostendorf, 1989) was offered and attended by
representatives of each of the seven universities and the DVACE. Although not a
requirement for funding of the project, this intensive, two-day, hands-on, live studio
workshop was critical for the success of planning and on-camera delivery by the teacher
educators. The participants, with a few exceptions, were novices at distance education.
Therefore, this project was a test of the extent to which the universities would work together.

In order to follow up the workshop and maintain communications and positive relations with
the DVACE staff, reference copies of the Ostendorf book and a resource notebook were provided to each Occupational Program Director (OPD) and the State Director at the DVACE.

Concurrent with workshop planning and fiscal arrangements, topics were agreed upon between each OPD and targeted university. A brochure containing program titles and related information was developed by mid-May, and over 800 brochures were mailed to school districts, community colleges, vocational centers, and universities, as well as to DVACE staff for additional distribution. Through additional contacts at the Florida Department of Education, Bureau of Educational Technology, and the state satellite staff of SUNSTAR, additional brochures were sent to the designated downlink sites. Program notices also were included in the Monday Report (a statewide weekly educational newsletter) and on the Florida Information Resource Network (FIRN), a statewide electronic mail network of over 8,000 participants. Local newspaper articles described the project as well.

The next task was to reserve satellite time using “C” Band to compensate for summer lightning storms. A special rate for the 24 contact hours was confirmed through AT&T SKYNET Services with each university-based program billed for its respective hours. High quality speaker phones and microphones were necessities for the audio-interactive sites. Speaker phones and microphones manufactured by A.T. Products were the sole products selected. The Director of Marketing and President of A.T. Products also attended the Ostendorf training workshop and provided on-site, hands-on training with the equipment and a toll-free phone number.

Weekly conference calls were scheduled using an existing telephone bridge at one of the participating universities, and representatives from all university-based program participated in most sessions. Agendas were faxed to each site prior to the conference. Representatives
from AT&T SKYNET, SUNSTAR, A.T. Products, and the DVACE were on-line as needed for planning and problem-solving prior to program delivery and for feedback after each program. In this approach, teaming and collaboration were enhanced.

Goal 1: Use a Variety of Techniques

Within the 12 programs, several different learning technologies were used. A partial list is included below:

- Taped Roll-In and Live Interviews
- Demonstration of Procedure
- Overheads, Paper, Slides, Flip Charts
- Group Discussions
- Panel
- Brainstorming
- *Taped Roll-In Field Trip
- Survey
- Role Playing
- Handouts
- Lecture
- *Faxed Questions
- Panel Discussions
- Participant Questions in Studio
- *Character Generations
- Still Store
- *Chromakey
- Computer Monitor Access
- Industry Representatives
- *Participant Questions via Audio Bridge

Those denoted by asterisks (*) are used specifically in distance education programs. Many of these techniques are also used in traditional classrooms and were effective in these multiple site satellite programs.

Goal 2: Interactivity of Programs

Interactivity is important whether in a traditional classroom or laboratory, or when using multiple sites with satellite and telephone technologies. One goal was to compare the interactive (telephone bridge, 800 number, and faxed questions) sites to the non-interactive
Participants were asked to respond to a questionnaire that elicited feedback on each program. The following summary data is excerpted from the project final report (Hudson, 1992) with input from the outside evaluator.

**Demographics**

The evaluation questionnaire was structured so that answers to the first three items identified the specific program attended by the subject; items four and five identified the subject’s vocational area, and items six through eight identified the subject’s school setting, work title, and work status. Item nine asked whether the site used the telephone bridge for interaction. Items 10 through 18 of the evaluation questionnaire requested opinions from the subjects concerning various ways of interpreting the success of the program they experienced. The opinion items are most relevant for the evaluation of the project.

**Findings**

A total of 205 subjects returned questionnaires, although some subjects failed to respond to all items. Participants represented all eight program areas. A summary of the number of participants attending each program and as well as the date of presentation is included as Table 1. A total of 12 workshops were offered addressing eight program areas: agribusiness, business (2), health (2), home economics, industrial (2), marketing, public service, and technology (2).

Items 10 through 18 addressed the effectiveness of distance learning by soliciting opinions from the participants. Item 10 asked if they achieved the goal of technical updating for the topic listed. Of the 192 participants who responded to this item, 130 (68%) agreed (94) or strongly agreed (36), 41 (21%) were neutral, and 21 (11 %) disagreed (16) or strongly disagreed (5). Thirteen participants did not respond to this item. Item 11
Table 1

**Frequency Distribution for Specific Program (Items 1-3)**

<table>
<thead>
<tr>
<th>Program</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness (6/23)</td>
<td>22</td>
<td>10.7</td>
</tr>
<tr>
<td>Business (6/17)</td>
<td>22</td>
<td>10.7</td>
</tr>
<tr>
<td>Business (7/2)</td>
<td>11</td>
<td>5.4</td>
</tr>
<tr>
<td>Health (6/24)</td>
<td>10</td>
<td>4.9</td>
</tr>
<tr>
<td>Health (7/1)</td>
<td>8</td>
<td>3.9</td>
</tr>
<tr>
<td>Home Economics (6/25)</td>
<td>42</td>
<td>20.5</td>
</tr>
<tr>
<td>Industrial (6/8)</td>
<td>28</td>
<td>13.7</td>
</tr>
<tr>
<td>Industrial (6/30)</td>
<td>9</td>
<td>4.4</td>
</tr>
<tr>
<td>Marketing (6/29)</td>
<td>14</td>
<td>6.8</td>
</tr>
<tr>
<td>Public Service (6/24)</td>
<td>8</td>
<td>3.9</td>
</tr>
<tr>
<td>Technology (6/23)</td>
<td>9</td>
<td>4.4</td>
</tr>
<tr>
<td>Technology (6/25)</td>
<td>21</td>
<td>10.2</td>
</tr>
<tr>
<td>None of the above</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>205</td>
<td>100.0</td>
</tr>
</tbody>
</table>

questioned the relevancy of program materials to the presentations. Of the 194 responses, 139 (72 %) agreed (88) or strongly agreed (51), 47 (24%) were neutral, and 8 (4%) disagreed (4) or strongly disagreed (4). Eleven participants did not respond. Item 12 asked if the program moderator generated enthusiasm during the session. Responses numbered 196. Of
these, 140 (71%) agreed (84) or strongly agreed (56), 41 (21%) were neutral, and 16 (8%) disagreed (9) or strongly disagreed (7). Eight participants did not respond to this question. The program presenters’ instructional credibility was questioned in item 13, which received 196 responses. Of these, 178 (91%) agreed (99) or strongly agreed (79), 17 (9%) were neutral, and less than 1% disagreed (0) or strongly disagreed (1). Nine participants did not respond. In item 14, participants were asked if technology generally worked well at their site. For this item, there were 197 responses. Of these, 144 (73%) agreed (94) or strongly agreed (50), 24 (12%) were neutral, and 29 (15%) disagreed (26) or strongly disagreed (3). Eight participants did not respond. The quality and quantity of interaction between participants and presenters was questioned in item 15, to which 194 responses were received. Of these responses, 163 (84%) agreed (97) or strongly agreed (66), 19 (10%) were neutral, and 12 (6%) disagreed (9) or strongly disagreed (3). Eleven participants did not respond. Item 16 asked if the program lent itself to the use of satellite teleconferencing technology. Of the 195 responses, 163 (84%) agreed (103) or strongly agreed (60), 17 (9%) were neutral, 15 (8%) disagreed (13) or strongly disagreed (2), and 10 did not respond. In item 17, participants answered whether or not they would participate in future satellite teleconference activities. On this item, there were 197 responses, of which 164 (83%) agreed (97) or strongly agreed (67), 19 (10%) were neutral, 14 (7%) disagreed (12) or strongly disagreed (2), and 8 did not respond. Finally, item 18 asked if participants would encourage others to enroll in future satellite teleconferencing activities. Of the 197 responses to this item, 162 (82%) agreed (92) or strongly agreed (70), 25 (13%) were neutral, 10 (5%) disagreed (5) or strongly disagreed (5), and 8 did not reply. These items are summarized in Table 2.
Table 2

**Response Frequencies** for Nine **Opinion** Items

<table>
<thead>
<tr>
<th>Item</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>36</td>
<td>94</td>
<td>41</td>
<td>16</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>11</td>
<td>51</td>
<td>88</td>
<td>47</td>
<td>4</td>
<td>4</td>
<td>11</td>
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<tr>
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<td>56</td>
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<tr>
<td>13</td>
<td>79</td>
<td>99</td>
<td>17</td>
<td>0</td>
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<tr>
<td>14</td>
<td>50</td>
<td>94</td>
<td>24</td>
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<tr>
<td>15</td>
<td>66</td>
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<td>19</td>
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<td>60</td>
<td>103</td>
<td>17</td>
<td>13</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>17</td>
<td>67</td>
<td>97</td>
<td>19</td>
<td>12</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>70</td>
<td>92</td>
<td>25</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

**Discussion**

In looking at items 10-18, it was generally found that the distance technology worked well. Participants and presenters were able to interact with no difficulty, and presenters’ instructional credibility was perceived highly. Satellite teleconferencing technology seemed to lend itself to the topics presented, and the program materials seemed relevant to the presentations. The responses show that the majority of respondents, even if participating for the first time, agreed that they would participate in future satellite teleconferencing activities. Such strong response strongly advocates future workshops through this medium.
Goal 1 was met by using 18 different strategies to enhance technical skills updating of teachers for specified vocational program areas. Seven of these skills are used specifically in long distance education. Goal 2 compared interactive and non-interactive formats to study the effectiveness and efficiency of delivering distance learning. There were no significant differences between interactive and non-interactive sites. Goal 3 promoted cooperation and teaming among academic and vocational teacher educators. Eight of the nine public universities participated. Seven presented programs while the other served as an outside evaluator. The program evaluation revealed that cooperation and teaming did take place between eight universities. Subjects were very positive about their technical updating experience. Analysis of responses from participants in the workshops depicts acceptance of long distance educational technologies for technical updating of teachers. Several universities worked together to produce quality programs on a common project in a short amount of time. The positive reaction from teachers overall clearly denotes that the program can be evaluated as a success.

References


